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ABSTRACT

This guide is designed primarily for the use of U.S. Training and Employment Service personnel and affiliated State agencies engaged in such activities as interviewing, counseling, and planning educational programs for applicants. It should also prove useful to persons involved in related activities in schools, vocational guidance or rehabilitation centers, industrial personnel offices, and other institutions or establishments. The guide defines and briefly discussed General Educational Development (GED). Application of GED in Career Planning is described. The primary purpose of determining the GED of an individual is to provide a criterion for use along with other information in relating him to suitable vocational goals. A GED Academic Level Chart is presented, which contains overall criteria for use in determining an individual's general educational development. Each level begins on a separate page, and is described by five categories of information: Definition of reasoning development; definition of mathematical development; mathematics curriculum; definition of language development; and language curriculum. Eight examples are given which illustrate methods of using the chart, along with the Worker Traits Arrangement of the DOT, for career planning. An appendix presents a verification of curriculums. (DB)

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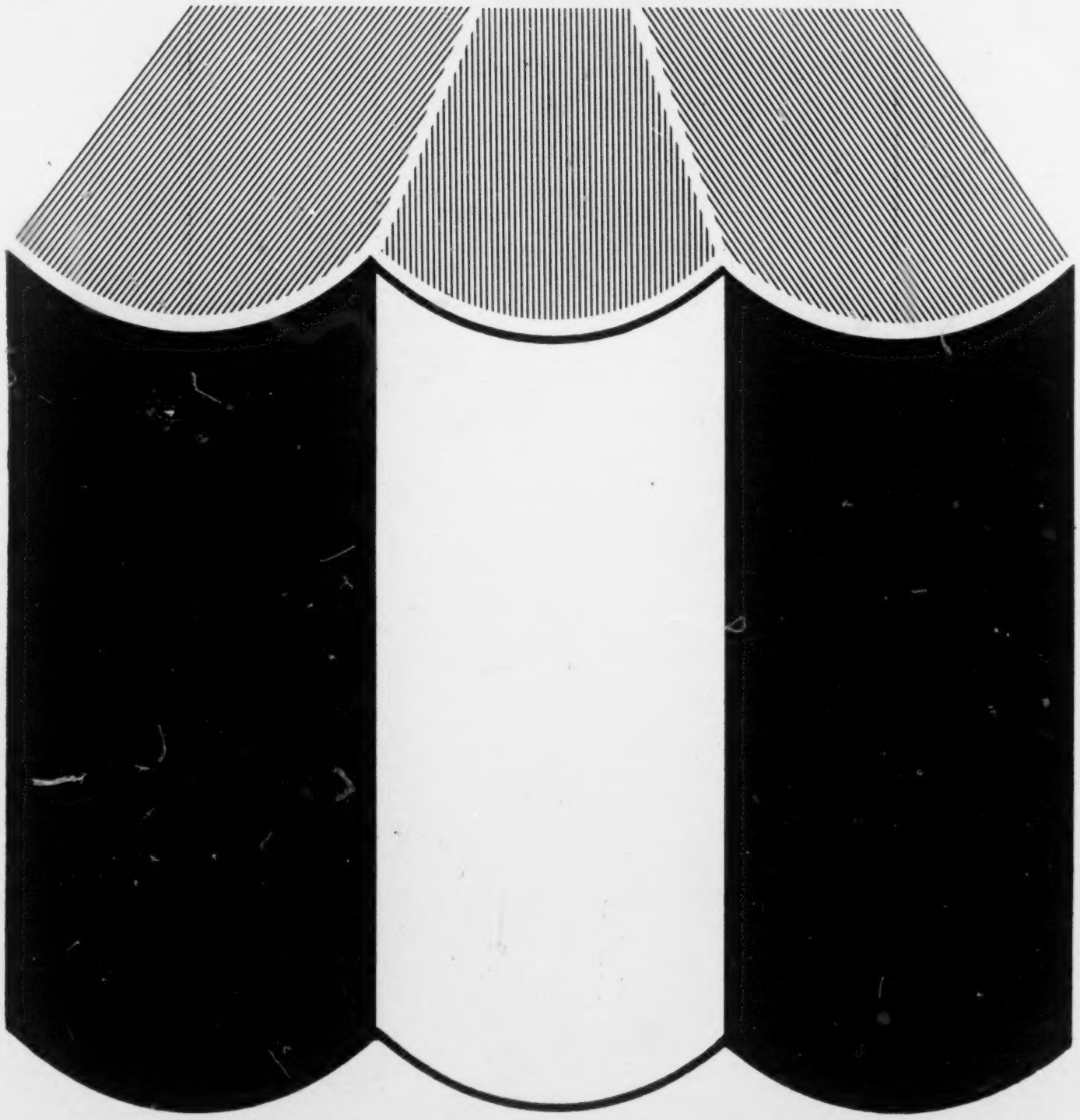

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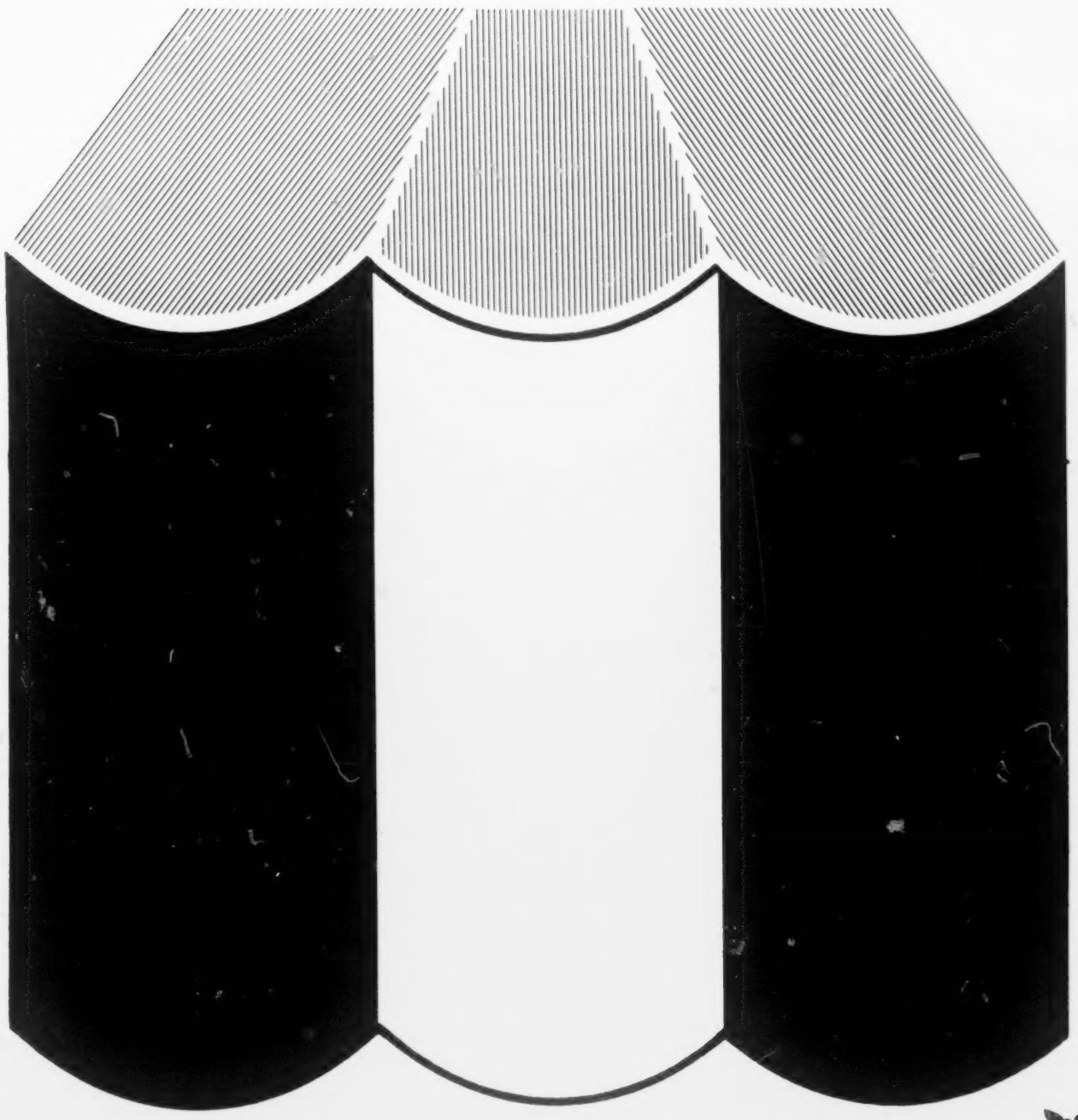

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Preface

This guide is designed primarily for the use of U.S. Training and Employment Service personnel and affiliated State agencies engaged in such activities as interviewing, counseling, and planning educational programs for applicants. It should also prove useful to persons involved in related activities in schools, vocational guidance or rehabilitation centers, industrial personnel offices, and other institutions or establishments.

The guide was developed by the U.S. Training and Employment Service in its Office of Technical Support, Fred E. Romero, Director. It was prepared under the leadership of Leon Lewis, Chief, Division of Occupational Analysis and Employer Services, with immediate planning and supervision by Adaline Padgett, Supervisory Occupational Analyst. William Mackintosh, Supervisor of the former District of Columbia Occupational Analysis Field Center, collected the basic original curriculum data, and Bessie Kuhn, Occupational Analyst, Missouri Occupational Analysis Field Center, coordinated the data into a final document.

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The data in this publication are intended to facilitate the process of career development by providing techniques for determining the general educational development level of an individual and relating it to the general educational development required for different jobs. It is anticipated that these data will be utilized as an auxiliary to the Worker Traits Arrangement of volume II (pp. 214-529) of the *Dictionary of Occupational Titles* (DOT), third edition, 1965.

Of course, this guide should not be used in an arbitrary manner, nor as the sole authority in the complex process of relating persons to employment opportunities and assisting them with vocational goals. The multiplicity of considerations involved in evaluating the total individual—his personality characteristics and physical limitations as well as any vocational training, acquired skills, or previous work experience he may possess—will all affect his immediate and long-range career goals.

General Educational Development (GED)

Definition

General educational development (GED) is education of a general academic nature, ordinarily obtained in elementary or high school or in college, which does not have a recognized, fairly specific occupational objective; it may also be derived from experience or self-directed study. It is composed of the following three divisions:

Divisions of GED

Reasoning Development–The capacity to comprehend concepts and systems, solve problems, exercise judgment, and understand and carry out instructions, as well as to adapt to social and work environment.

Mathematical Development–The acquisition of basic mathematical skills, not specifically vocationally oriented, such as solving arithmetic, algebraic, and geometric problems.

Language Development–The acquisition of language skills, not specifically vocationally oriented, such as mastery of an extensive vocabulary; use of correct sentence structure, punctuation, and spelling; and an appreciation of literature.

Rationale for Mathematics and Language Development

The last two divisions relate to "tool knowledges" which, although not specifically vocationally oriented, are basic to preparation for specific vocational goals. The descriptions of the various levels of language and mathematical development are based on the curriculums being taught at specified grade levels in schools throughout the Nation. An analysis of mathematics courses in the school curriculums revealed distinct levels of progression in the primary and secondary grades and in college.

Six Levels of Mathematical Development

These levels of progression facilitated the selection and assignment of six levels of GED for the mathematical development scale.

Five Levels of Language Development

Though language courses follow a similar pattern of progression through completion of high school, consisting primarily of learning and applying the principles of grammar, this pattern breaks down at the college level. The diversity of fields of study offered at the college level precluded the establishment of distinct levels of language development for these 4 years. Consequently, both GED level 5 and GED level 6 are defined by one language curriculum.

Application of GED in Career Planning

Data for Individual Appraisal

In career planning it is essential to obtain all occupationally significant information about an individual: Education, training, leisure-time activities, readily observable personal traits, vocational interests, and past work experience, if any.

GED a Factor in Appraising Individual

One of the most important of these is educational achievement, or general educational development (GED). Appraisal of the individual in terms of GED is based on such data as:

Data for Determining GED

1. School achievement, including grade level attained, subjects studied, standing in class, and honors or special recognition in specific subjects.
2. Special courses, either military or civilian.
3. Results of tests which measure degree of academic achievement or general intelligence.
4. Spare-time activities and interests.
5. Achievements, both vocational and personal, in previous work situations, if any.
6. General demeanor and manner of communicating during interviews.

Data Related to Levels on Chart

These data can be related to an appropriate academic level on the chart (p. 6), which, in turn, relates to a level of GED. For example, an individual who has completed the eighth grade in school and achieved a B average in arithmetic, with C's and B's in other subjects, appears to be at an academic level which relates to GED level 3. If more information is needed to make a final determination, the interviewer will probe into courses studied to insure that the curriculum at that particular school met the standards reflected in the curriculum for level 3 on the chart.

It must be remembered that an individual sometimes has a higher educational development than his formal education presupposes, and in this case, he should be identified at a higher, more appropriate level.

Relating Information to WTA

The primary purpose of determining the GED of an individual is to provide a criterion for use along with other information in relating him to suitable vocational goals, whether through immediate employment or through additional education and training. All information about the individual—the evaluation of his aptitudes,

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interests, and personality characteristics, his GED level, and any tests results—can be related to areas of work, groups of jobs, and specific jobs in the Worker Traits Arrangement (WTA) volume II of the *Dictionary of Occupational Titles* (DOT), third edition, 1965 (pp. 214-529).

Volume II of DOT Worker Traits Groups

This part of volume II lists worker traits groups which contain jobs possessing common worker requirements. Each group has a qualifications profile, which includes the GED level or levels required for workers to perform the jobs in the group.

GED Required by Worker

These GED levels indicate the degree of educational development, formal or otherwise, which the worker should possess for average satisfactory job performance. By relating the GED level of the individual to that required for jobs in the various groups, the counselor or other person involved can do a better job of helping individuals select vocational goals.

Other Applications of Chart

The lists of subjects in the curriculum columns of the chart can also be used in planning basic or supplementary general education for persons in vocationally orientated training programs or advising a person on the educational basis needed for a particular career.

GED—Academic Level—Curriculums

Chart Content

This chart contains overall criteria for use in determining an individual's general educational development. Each level begins on a separate page and is described by five categories of information: Definition of reasoning development; definition of mathematical development; mathematics curriculum; definition of language development; and language curriculum.

Curriculum Representativeness

The curriculums for mathematics and language are representative of those in educational facilities in geographical areas throughout the country, but are not exhaustive for any particular school. The courses listed are of a general nature and do not include specialized studies directed at a specific vocation.

Terminology and Methods

While course content remains generally constant, methods of teaching, as well as terminology, vary from area to area. For example, more than half of the schools contacted use the so-called "new math" method of teaching arithmetic from the earliest elementary level through the eighth grade. The terminology of this method was not given in the chart for two reasons: (1) The practical results of the teaching are the same for the "new math" as for standard arithmetic operations; and (2) the terminology associated with "new math" techniques would be unfamiliar to many persons using the chart and would not be pertinent to the educational background of most individuals seeking assistance.

In many schools, the term "correct English usage" is used instead of "grammar." Again, the practical results are the same for students who study grammar and for those who are taught "correct English usage"; that is, both acquire knowledge of how to use words and sentences for oral and written communication. In summary, depending on the individual school, varying emphasis may be placed on the basic courses, but exposure to the fundamentals "reading, writing, and arithmetic" is universal.

GED LEVEL 1 (GRADES 1 TO 3)

Reasoning development	Mathematical development	Mathematics curriculum	
Apply commonsense understanding to carry out simple one- and two-step instructions. Deal with standardized situations with occasional or no variables in or from those situations.	Counting and addition and subtraction of two-place numbers, develop familiarity with standard units of measurement and with basic measuring equipment, such as clocks, rulers, and scales.	Counting:	By twos, threes, fours, and fives
		Place value:	Understanding the principle of place value of whole numbers. Column value (in multiples of 10) in a series of digits: 6,437 = 7 ones, 3 tens, 4 hundreds, 6 thousands. Value of zero as a placeholder; difference between 470, 407, 47.
		Roman numerals:	Understanding principles of notation. Symbol to right, add: XI = 10 + 1. Symbol to left, subtract: IX = 10 − 1.
		Ordinal numbers:	To 31st. Learning proper endings: *1st; 2d; 3d; 4th.*
		Addition:	Three-place numbers: 567 + 642 Decimal as: 1.25 + .35
		Subtraction:	Three-place numbers: 359 − 217 Decimals as: 3.27 − 1.16
		Multiplication:	One-digit multiplier: 2.05 × .3
		Division:	One-digit divisor: $2\overline{)426}$
		Fractions:	Addition of simple like fractions.
		Terms and symbols:	Knowledge of signs such as −, +, =, ×, $\sqrt{\ }$. Introduction to terms such as sum, remainder, difference, multiplier, divisor.
		Measurement:	Read clock, calendar, thermometer, yardstick, scales. Knowledge of units such as teaspoon, tablespoon, cup, pint, quart, inch, foot, yard, dozen, ounce.
		Geometric concepts:	Recognize geometric forms such as line, square, triangle, rectangle, cube, cylinder, sphere. Understand meaning of terms such as volume and perimeter.
		Practical application:	Perform the four basic arithmetic operations with parts of a dollar.

GED LEVEL 1 (GRADES 1 TO 3)

Language development	Language curriculum	
Read, speak, and print simple sentences containing subject, verb, and object using present and past tenses.	Punctuation:	Period, question mark, comma, exclamation point, quotation marks.
	Capitalization:	Names of places, persons, days, months, years, titles.
	Grammar:	Rote learning of correct usage of present and past tenses of common verbs such as: run, do, and go, and pronouns such as: I, me; he, him; they, them.
	Reference works:	Introduction to the use of the dictionary and encyclopedia.
	Spelling:	Learning to spell, through repetition and correction, words which are part of everyday vocabulary. Learning phonetic and structural principles.
	Reading:	Introduction to the printed word. Emphasis placed on relating written word to spoken word, acquisition of vocabulary, reinforcing correct grammatical usage, stimulating thought.
	Composition:	Emphasis on legibility, spelling, punctuation, initial capitalization, word order, and forming complete sentences and paragraphs.
		Learning to write letters, using headings, salutation, complimentary close.
	Speaking:	Learning to participate in conversations and discussions. Emphasis on clarity, enunciation, pronunciation, grammar, and voice modulation. Oral reports, such as "show and tell," including information such as "who, what, where, when, and why."
	Handwriting:	Mainly manuscript printing; introduction to cursive writing in second or third grade.

GED LEVEL 2 (GRADES 4 TO 6)

Reasoning development	Mathematical development	Mathematics curriculum	
Apply commonsense understanding to carry out detailed but uninvolved written or oral instructions. Deal with problems involving a few concrete variables in or from standardized situations.	Perform the four basic arithmetic operations, using whole numbers and common and decimal fractions. Develop knowledge of standard units of measure, and their interrelationships.	Numbers:	Read and write seven-digit numbers. Learn ordinals through "thousands."
		Counting:	By fractions and decimal fractions.
		Place value:	Place values of numbers to left and right of decimal point.
		Addition:	Multidigit columns.
		Subtraction:	Multidigit columns.
		Multiplication:	Two- or three-digit multipliers.
		Division:	Two- or three-digit divisors.
		Fractions:	Add, subtract, multiply, and divide common and decimal fractions, mixed numbers, improper fractions. Introduction to ratio and rate, percent; change fractions to decimal fractions and to percent.
		Part-whole relationships:	Introduction to reasoning and analysis of problems such as finding a part of a number; finding the whole when a part is given.
		Geometric concepts:	Learn meanings of terms such as radius, diameter, perimeter, circumference, area of rectangle, and volume. Construct graphs, charts, and tables. Construct simple geometric forms, such as arcs, triangles, and perpendiculars.
		Measurements:	Learn relationships of standard units of measurement to each other. Convert units of measure to smaller or larger units, such as inches to feet, acres to square miles, hours to days, minutes to seconds, or ounces to pounds.

GED LEVEL 2 (GRADES 4 TO 6)

Language development	Language curriculum	
Read, write, and speak compound and complex sentences, using adjectives and adverbs, and varying word order in phrases, clauses, and sentences. Discern and organize facts and opinions for written and oral communication.	Punctuation:	Apostrophe, hyphen, colon.
	Grammar:	Learn to use mature sentence forms (compound and complex) with variation of word order in phrases, clauses, and sentences. Introduction to comparison of adjectives and adverbs, compound subject and verb, common and proper nouns, personal pronouns, and singular and plural forms.
	Reference works:	Study of the dictionary to learn syllabication, accent, and diacritical marks such as macron (-), breve (v) double dot and single dot as aids to pronunciation. Study of road maps, timetables, and entertainment guides to determine distances between cities, report on transportation schedules, and discuss merits of available entertainment. Obtain library card and locate books, using index file.
	Reading:	Learn roots, prefixes, and suffixes. Learn to read discriminately, distinguishing between essential and unessential material. Enrich vocabulary with wide selection of reading material. Introduction to magazines, newspapers, bulletins, etc.
	Composition:	Write reports on class discussions, hobbies, and trips, with emphasis on variety of sentence structure, grammar, selection of words to express thought clearly, and reinforcing and increasing vocabulary. Make outlines; practice techniques of letterwriting and newswriting.
	Speaking:	Practice reading aloud to improve enunciation, pronunciation, inflection, and phrasing. Play part in a skit, or act out a scene based on own experience to learn to express feelings vocally. Learn and practice courtesies in social situations, such as allowing others to express their viewpoints without interruption or ridicule. Relate personal experiences to group.
	Handwriting:	Cursive writing; emphasis on legibility and facility in writing.

GED LEVEL 3 (GRADES 7 AND 8)

Reasoning development	Mathematical development	Mathematics curriculum	
Apply commonsense understanding to carry out instructions furnished in written, oral, or diagrammatic form. Deal with problems involving several concrete variables in or from standardized situations.	Compute discount, interest, percentage, surface areas, values, and weights and measures, using four basic arithmetic operations.	Whole numbers:	Mastery of the four basic arithmetic operations. Emphasis on speed and accuracy in computation. Extension to four- and five-digit multipliers and divisors.
		Fractions:	Mastery of the four basic arithmetic operations in common, decimal, and improper fractions and mixed numbers. Apply knowledge to solve "story problems." Develop speed and accuracy in changing fractions into percent and percent into fractions. Memorize most common equivalents, such as halves, quarters, eighths, fifths, thirds, sixths, and twelfths, and mentally convert them to decimal fractions and percents.
		Percentage formulas:	Memorize and apply formulas to solve "story problems," as: $P = RB \qquad R = \frac{P}{B} \qquad B = \frac{P}{R}$
		Measurements:	Perform the four basic arithmetic functions to solve problems involving different units of same type of measurement, as time: 4 wks., 6 days, 22 hrs. + 2 wks., 3 days, 23 hrs.
		Graphs:	Learn to construct and interpret line, bar, and picture graphs. Convert degrees to percent to draw circle graphs.
		Percentage:	Apply knowledge of percentage to compute interest, discount, etc.
		Geometry:	Recognize and understand meanings of terms such as horizontal, vertical, perpendicular, oblique, and obtuse. Learn number of degrees in a circle; relationship between angles and degrees; and types of triangles: equilateral, isosceles, right, and obtuse. Types of parallelograms: oblong, square, rhomboid, and rhemus. Learn formulas for finding area of geometric figures.
		Algebra:	Learn use of symbols for numbers, terms such as exponent and power. Learn to find square roots.
		Ratio and proportion:	Learn to use ratio and proportion to solve problems.

GED LEVEL 3 (GRADES 7 AND 8)

Language development	Language curriculum	
Selective reading of textbooks and other materials to extract essential theme or idea. Compose themes, reports, and essays, following rules of grammar and spelling, using proper format, and preparing neat papers.	Punctuation:	Comma, colon, semicolon, dash, parentheses, quotation marks, hyphen, abbreviations.
	Reference works:	Utilize dictionary to learn alphabetical order, guide works, diacritical marks, synonyms, and antonyms. Use encyclopedias, atlases, magazines, and other source books to prepare class assignments.
	Handwriting:	Develop individualized style of writing.
	Grammar:	Learn concepts of person, gender, number, case, tense, mood, and voice. Learn kinds of verbs, nouns, pronouns, adjectives, adverbs, conjunctions, prepositions. Learn to diagram sentences. Learn normal and inverted word order, contractions, and agreement of subjects and verbs and of pronouns and antecedents.
	Reading:	Read to find main thought or idea of a paragraph. Locate topic and summary sentences, and identify details and relate them to central thought.
	Composition:	Prepare themes, reports, and essays, with greater emphasis placed on punctuation, spelling, grammar, format, style, neatness, arrangement, and comprehensive coverage of subject matter.
	Speaking:	Practice speaking before an audience to acquire poise, self-control, and confidence. Participate as group leader or group member in planned informal discussion. Participate in class elections and persuade others to vote for him or his candidate.

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GED LEVEL 4 (GRADES 9 TO 12)

Reasoning development	Mathematical development	Mathematics curriculum	
Apply principles of rational systems to solve practical problems and deal with a variety of concrete variables in situations where only limited standardization exists; interpret a variety of instructions furnished in written, oral, diagrammatic, or schedule form.	Perform arithmetic, algebraic, and geometric operations as applied to standard situations; perform shop mathematics operations in practical application to the manual arts.	Algebra:	Elementary algebra with formal study of number systems and sets and set operation. Operations on polynomials and rational expressions, solution of equations and inequalities, use of deduction and proof. Extended study of the systems of real numbers; linear, quadratic, rational, exponential, logarithmic, angle, and circular functions; inverse functions; related algebraic functions; limits and continuity; probability; and statistical inference.
		Geometry:	Deductive axiomatic geometry, plane and solid, using the properties of real numbers; the introduction and use of rectangular coordinates. Extension of trigonometry and solid geometry.
		Technical/Vocational School	
		Shop math:	Review and extension of principles of common and decimal fractions, percentage, ratio, and proportion. Practical computation, logarithms, slide rule. Practical algebra. Metric geometry. Essentials of trigonometry. Formulas for computing ratios of pulleys and gears. Practical physics: formulas for work, power, etc.

GED LEVEL 4 (GRADES 9 TO 12)

Language development	Language curriculum	
Speak on a variety of subjects, or compose business letters, reports, summaries, or expositions conforming to rules of grammar, continuity, diction, coordination, length, harmony, and sequences of sentences and paragraphs.	Punctuation:	Review and mastery of all rules of punctuation and capitalization.
	Reference works:	Dictionary, encyclopedias, atlas, thesaurus, manuals, periodicals, newspapers, journals, and book and play reviews.
	Grammar:	Mastery and facility in the use of the rules and concepts of person, gender, number, case, tense, and mood.
	Parts of speech:	Verbs: Strong and weak, transitive and intransitive, auxiliary, and regular. Conjugation.
		Nouns: Common and proper, collective, concrete and abstract; inflections; gender.
		Pronouns: Personal, demonstrative, relative, numerical, reciprocal.
		Adjectives: Common, proper, descriptive, limiting, articles; position in sentence; comparative degrees.
		Adverbs: Simple, conjunctive; forms; comparison.
		Conjunctions: Coordinating, subordinating.
		Interjections.
		Prepositions.
	Reading:	Variety of textbooks, fiction and nonfiction, newspapers, magazines.
	Composition:	Preparation of outlines; preparation of themes, emphasizing length, harmony, sequence, and variety of sentences and paragraph structure. Selection of words according to subject matter and audience. Coordination, subordination, and parallelism of thoughts.
	Speaking:	Participation in panel discussions and dramatizations. Practice of social introductions and other amenities. Presentation of impromptu speeches to develop skill in extemporaneous speaking.

GED LEVEL 5 (COLLEGE 1 AND 2)

Reasoning development	Mathematical development	Mathematics curriculum	
Apply principles of logical or scientific thinking to define problems, collect data, establish facts, and draw valid conclusions. Interpret an extensive variety of technical instructions in books, manuals, or mathematical or diagrammatic form. Deal with several abstract or concrete variables.	Apply knowledge of established statistical and mathematical techniques in the analysis and evaluation of data.	College algebra:	Exponents and logarithms; linear equations; quadratic equations; math induction and binomial theorem.
		General math:	General introduction to the concepts of algebra, plane geometry, trigonometry, and calculus.
		Calculus:	Elementary concepts of analytic geometry; differentiation and integration of algebraic functions and transcendental functions with application. Vector concepts; improper integrals; polar coordination and infinite series. Integration and partial differentiations; solid geometry; differential equations.
		Introduction to math logic:	Development of propositional and predicate calculi, basic sematic concepts, and elementary intuitive set theory.
		Introduction to matrix theory:	Elementary theory of finite vector spaces, determinates, equivalence, matrices with polynomial elements, similarity of matrices.
		Statistics:	Graphic presentations illustrating averages, dispersions, quartiles and percentiles, frequency distribution, reliability and validity of tests. Applied to psychology and education, analysis of variances, correlation techniques, chi-square and sampling techniques. Applied to business and economics, introduction to the principles and use of linear programing, game theory, and queuing theory.
		Mathematics of finance:	Interest and discount, annuities, valuation of stocks and bonds; sinking funds, amortization valuation of depletable assets.
		Factor analysis:	Matrix theory as applied to factor analysis; introduction to concepts of factor analysis and their utility in phases of research.
		Quality control techniques:	Application of probability and distribution theory to industrial control problems; use of quality charts; acceptance sampling plans.
		Introduction to math probability:	Probability distributions, Bayes' theorem and postulate; Bernoulli's theorem and its experimental verification; math expectation; laws of large numbers.

GED LEVEL 5 (COLLEGE 1 AND 2)

Language development	Language curriculum	
Read or write speeches, book and play reviews, scientific and technical materials, abstracts, financial reports, and legal documents. Be conversant in the theory, principles, and methods of effective and persuasive speaking, including voice, diction, and phonetics, in discussion and debate.	Reading:	Literature; book and play reviews; scientific and technical journals; abstracts; financial reports; legal, historical, and medical documents; and periodicals.
	Composition:	Analysis and practice of expository techniques with emphasis on organization of material and development of unity.
	Logic:	Study of the principles of inductive and deductive reasoning, such as testing evidence, validity of generalizations, and cause and effect relationships, to detect fallacies in arguments and to avoid these errors in own writing.
	Rhetoric:	Study of the collection, arrangement, and expression of subject matter to persuade or instill an acceptance of ideas in the mind of the reader.
	Creative writing:	Develop a free and independent skill in writing, based on own knowledge and experience.
	Narrative writing:	Develop a sequential and descriptive style of writing.
	Play-writing:	Study and application of theory of dramatic writing.
	Speaking:	Effective speaking: Study in the selection and organization of material and delivery of speech. Development of voice control, poise, and confidence. Persuasive speaking: Emphasis on composition of speech and principles of persuasion. Voice and diction: Study of standards of speech. Record speech and study recording to develop voice control of volume, pitch, and rate. Phonetics: Study and classification of sounds of speech. Discussion and debate: Study of types and principles of public and group discussions. Methods in leading discussion; practice in argumentation and debate.

GED LEVEL 6 (COLLEGE 3 AND 4)

Reasoning development	Mathematical development	Mathematics curriculum	
Apply principles of logical or scientific thinking to a wide range of intellectual and practical problems. Deal with nonverbal symbolism (formulas, scientific equations, graphs, musical notes, etc.) in its most difficult phases. Deal with a variety of abstract and concrete variables. Comprehend the most abstruse classes of concepts.	Apply knowledge of established and theoretical mathematical and statistical concepts in the field of research and development.	Advanced calculus:	Limits, continuity, real number system, mean value theorems, partial differentiation, implicit function theorems, transformations, mappings, vector fields, multiple integrals, line and surface integrals, point set theory, theory of integration, improper integrals.
		Generalized functions and operational methods:	Theory of generalized functions in one variable. Operational calculus of generalized functions. Application to partial differential and convolution equations of applied mathematics.
		Modern algebra:	Fundamental concepts of theories of groups, rings, and fields; theory of finite fields, extension fields, and Galois groups; factorization theory in Gaussian domains.
		Topics in matrix theory:	Theory of linear transformations (vector spaces over a division ring), advanced classical theory, matrix representation of groups and rings.
		Other:	Theory of linear transformations and equations; theory of numbers; infinite series; mathematical logic; theory of functions of complex variables; differential geometry; introduction to algebraic geometry; calculus of variations; general topology; numerical analysis.
		Mathematical statistics:	Distribution theory, sampling theory, estimation, hypothesis testing, confidence methods, regression analysis, experimental design. Distribution functions; sequences of random variables and their analysis; characteristic functions; linear statistical estimation. Time series, multivariate theory, probability spaces, random variables, conditioning, Martigales.
		Mathematical probability and application:	Combinatorial analysis, conditional probability, and stochastic independence, probability distribution, laws of large numbers, recurrent events, random walks.
		Statistical inference:	Estimation: methods in point estimation-moments, least squares, maximum likelihood, confidence and fiducial intervals, odds and odds ratio, Bayesian inference.

GED LEVEL 6 (COLLEGE 3 AND 4)

Language development	Language curriculum
Same as level 5	Same as level 5

Illustrations of Use of Chart

Following are eight examples which illustrate methods of using the chart, along with the Worker Traits Arrangement of the DOT, for career planning.

EXAMPLE I, AN INEXPERIENCED YOUNG APPLICANT

James P. graduated from high school 234th in a class of 503 students. He had intended to enlist in the Navy, but was classified 4-F because of a "trick knee" acquired during his high school football career. He had taken a general studies curriculum in school, not specializing in college preparatory, vocational, or business subjects.

Evaluation of Curriculum

Reviewing the curriculum on the chart for grades 9 to 12 with James, the counselor found that he had studied algebra and geometry, each for 1 school year. He had made D's in these subjects, just managing to pass. He had taken the required 4 years of language-oriented courses. He took both language usage and literature as well as 2 years of speech. He did well in these subjects, making A's and B's; however, he had not participated in any related extracurricular activities, such as class plays or the school newspaper, because he preferred to engage in sports, particularly football.

Hobbies and General Outlook

He had no hobbies other than listening to popular music, reading sports magazines, and attending sports events. Although he was disappointed at being refused for military service, his mental and emotional outlook was good, and he was neatly dressed and well groomed.

Need to Change Plans

James had never intended to go to college. He had planned to enlist in the Navy and either make a career of it or decide, while in the service, what he wanted to do. With this avenue closed to him, he had to decide on some other career plan. James could not afford to go to college full time because his parents were unable to give him any financial assistance other than room and board.

Limited Work Experience

He had limited work experience, as a vendor at the local sports stadium, but had taken this job primarily in order to attend sports events without paying the price of admission. He had no great interest in, or ability for, selling.

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Occupational Preference Indications

Through interviewing and occupational preference testing, it was determined that James would enjoy working with people and would like outdoor work, especially if he could relate it to some sort of athletic activity.

Evaluation of his high school curriculum and grades, plus the results of an academic achievement test and information derived through interview, indicated that James possessed the language and reasoning development of the average high school graduate. Because he had not been interested in mathematics courses and had done poorly in them, his mathematical development was lower than his level in the other categories.

Assignment of GED

However, his overall knowledge level appeared to be that of a high school graduate, and this, plus other information obtained through interview, suggested that he could be assigned a GED of 4.

Use of Worker Traits Arrangement

Keeping this in mind, the counselor turned to the alphabetized index of areas of work (vol. II, p. 214, of the DOT) to find the broad, general work areas which reflect James' indicated interests in "working with people" and "outdoor work."

Identification of Appropriate Areas of Work

The first possibility for consideration seemed to be the area called BUSINESS RELATIONS. Among the worker traits groups listed for this area of work, *Interviewing, Information-Giving, and Related Work* seemed most in keeping with James' interests. The counselor therefore turned to page 250 to read the description of jobs in this field. Although they agreed with James' interest in "working with people," most were in an office environment, which he did not want. Also, most jobs, though characterized by a GED level of 4 or 5, required some college for entrance. James possessed the worker requirements of verbal facility, neat appearance, and poise, but lacked those of numerical and clerical ability. The counselor also noted that James was not interested in this type of work, even as a long-range career goal, and turned back to the areas of work listings for other possibilities.

Verification of GED and other Factors in Qualifications Profile

Other Possibilities for Consideration

The areas of COUNSELING, GUIDANCE, AND SOCIAL WORK (vol. II, p. 293 of the DOT) and EDUCATION AND TRAINING (p. 332) included jobs which "sounded interesting" to James, but most of these jobs required a GED of 5 or 6, and the accompanying higher education that this level entailed. Thus, these could be considered as long-range career goals; but, for the time being, they were not open to James.

Elimination of Work Area with Low GED Rating

The other obviously people-oriented area of work, PERSONAL SERVICE (p. 498), included groups of jobs with GED requirements of only 2 and 3. James could have investigated some of these, but, considering his class standing and his learning potential (as indicated by both school grades and test results), they could result only in "underemployment."

Location of Appropriate WTA Group

The counselor returned once more to the areas of work listing and noted MEDICINE AND HEALTH (p. 470) as a possible area for exploration. Jobs in the WTA Group, *Nursing, X-Ray, and Related Services* in this area, were characterized by a GED of 4, which correlated with James' own level of development. Worker requirements included a facility for relating to people and an interest in their welfare; finger dexterity and eye-hand coordination; and cleanliness, good health, and freedom from communicable disease. James possessed all of these qualities. There were certain other requirements, such as "the desire to learn, absorb, and apply technical training," which were unknown factors to James; however, in general, both his level of intelligence and his interests seemed to indicate potential for jobs in this group.

Description of Specific Job

Looking through the list of jobs (vol. II, p. 478, of the DOT), the counselor noted the title OCCUPATIONAL THERAPY AID (079.368). She turned to volume I of the *Dictionary* and read the definition:

> Assists OCCUPATIONAL THERAPIST in administering medically oriented occupational program to assist in rehabilitating patients in hospitals and similar institutions: Instructs patients in manual and creative arts, games, crafts, and other activities. Reports to and consults OCCUPATIONAL THERAPIST regarding patients' performance and changes in program procedures. Prepares and lays out work materials and supplies, and assists in maintenance of equipment. . . .

Since these duties, especially that of instructing patients in games, seemed to reflect James' interests and capabilities, this job seemed to be a good possibility for exploration.

Further Investigation of WTA Groups

However, wishing to give James a choice, the counselor decided to read through the groups of jobs listed under the EDUCATION AND TRAINING area (vol. II, p. 332 of the DOT) once again. Since James had not attended college, those groups of jobs which required a degree, or which had a GED of 5 or 6, were automatically eliminated. However, under *Miscellaneous Instructive Work,* the counselor found a group of jobs which seemed to fit James' background and interests admirably.

The GED for these jobs varied from 3 to 5. Their work activities involved the teaching of a variety of recreational and similar activities. Worker requirements included the ability to communicate ideas and to relate to people, a learning capacity sufficient to acquire necessary experience and teaching techniques, and eye-hand-foot coordination in applicable instances. Jobs in this field seemed to indicate some possibilities for James, because of his interest in athletics and his ability to communicate. The counselor noted, particularly, the job titles PROGRAM AID, GROUP WORK and RECREATION LEADER. Both were listed under the occupational group title of Social and Welfare Work, which seemed an appropriate group for James because of his interest in working with people. From volume I, the counselor read these definitions:

Definitions of Appropriate Jobs

PROGRAM AID, GROUP WORK: Leads information group work activities under supervision of PROGRAM DIRECTOR, GROUP WORK or GROUP WORKER: Plans group programs to meet needs and interests of individual members. Interests participants in activities, such as arts and crafts and dramatics. Demonstrates techniques for active sports, group dances, and games. Helps develop new skills and interests. May work with part time or volunteer staff. Employed by agencies, such as community center, neighborhood house, settlement house, or hospital.

RECREATION LEADER: Conducts recreation activities with assigned groups in public department or volunteer agency: Organizes, promotes, and develops interest in activities, such as arts and crafts, sports, games, music, dramatics, social recreation, camping, and hobbies. Cooperates with other staff members in conducting community wide events and works with neighborhood groups to determine recreation interests and needs of all ages. Works under close supervision of RECREATION SUPERVISOR. Cooperates with recreation and nonrecreation personnel when in agency setting. . . .

James appeared to be equipped (through both background and aptitudes) to enter training for either of these jobs, or for the job of OCCUPATIONAL THERAPY AID described earlier. Coincidentally, there were openings for both types of work in the community: The local Veterans Hospital was hiring persons to be trained for their job of Occupational Therapy Assistant, and, in cooperation with a federally funded Human Resources Development program, a local settlement house was expanding its services to include a full-time recreation program for inner-city residents and needed to hire young and enthusiastic persons to help implement this program.

Choice of Job

James, thinking of his own 4-F draft status, decided to apply for the job at the Veterans Hospital. In addition to doing a job he thought he would like, and which might lead to advancement, he felt that he could do something to help his country by assisting in the rehabilitation of men who had served actively.

James was hired, and soon found that this kind of work was to his liking.

Preparation for Long-Range Vocational Goal

As preparation for his long-range vocational goal, he enrolled in night classes at a local university to work toward a degree in physical education which would equip him to teach in elementary or high schools. The courses he was taking would also raise the level of his GED and give him the background needed if he decided to go into physical or occupational therapy, or into social welfare work as a recreation director or group work supervisor.

Applicant Evaluation and the Career Plan

In this case, counseling could have stopped with the initial suggestion and successful placement of the applicant in the original job. However, the evaluation of James'

interests, aptitudes, and other characteristics, including his GED, suggested a career *plan,* based primarily on his interests and potential capabilities. To achieve his ultimate goal, James would need additional education, which he could not afford at the time of the initial interview.

Therefore, his choice of an entry job had two purposes in relation to his long-range vocational goal: To give him the means to support himself and obtain the additional education he needed, and to provide job experience which would be of value in the position he hoped eventually to attain.

EXAMPLE II, AN INEXPERIENCED OLDER APPLICANT

Personal Background

Marianne M., aged 52, was suddenly and unexpectedly widowed. Her husband, prior to his fatal heart attack, had encountered financial problems which forced him to convert all insurance and other assets to cash. Her only son was married and had three small children to support.

Mrs. M. had never been employed outside her home; but, because of the pressing needs of her financial situation, she realized that she would have to get a job.

She was distraught when she came for her counseling appointment, and had no idea what kind of work she might be capable of performing.

Extent of Education

Mrs. M. had graduated from high school and had had 1 year of college, intending to major in English. However, she had married after her freshman year and had not continued her education.

Evaluation of Curriculum

Reviewing the curriculum on the chart for grades 9 to 12 and college 1 and 2 (levels 4 and 5) with Mrs. M., the counselor found that she had taken 4 years of high school mathematics, including algebra, plane and solid geometry, and trigonometry. She had made average grades in these mathematics courses and had enjoyed the challenge of applying formulas to solve practical problems.

Language Curriculum

Her high school language curriculum had included the required 4 years of English, which she had also enjoyed. She particularly liked assignments which involved reading novels and writing book reports. She had participated in her class plays during both her junior and senior years.

She had taken no typing or other commercial courses during her high school career.

In college, Mrs. M. had no mathematics courses, but had taken freshman life and literature, a comprehensive language course which included reading and evaluating literature, as well as creative writing. She had enjoyed this class and had done well in it.

Achievement Test Results

Academic achievement tests indicated that Mrs. M. possessed the knowledge of the average high school graduate.

Although her formal education had ended many years ago and she had not worked outside her home, she had been active in civic affairs and was an avid reader. These activities contributed to her overall level of knowledge.

Assignment of GED

On the basis of school achievement, test results, and general demeanor, the counselor assigned Mrs. M. a GED level of 4.

Occupational Preference

Through interviewing and interest testing, it was determined that Mrs. M. would be most interested in work which included some public contact. She also demonstrated an interest in clerical work. Her reading habits suggested the possibility of employment in an environment where verbal ability would be an asset.

The counselor explained to Mrs. M. that, because of her complete lack of experience as well as her inability to type, it might be necessary for her to accept a job at a slightly lower level than her GED would suggest. Mrs. M. was realistic about this possibility. Probably her greatest asset was her manner, which was pleasant, unassuming, and straightforward.

Need for Immediate Employment

Mrs. M. needed an income immediately. She had no time for even a short training course, even if age requirements permitted her to enter one.

Selection of Area of Work

Considering the factors of Mrs. M.'s GED level, interests, aptitudes, personality, and physical capacity, the counselor turned to the alphabetical index of areas of work to select the broad general areas which would be most likely to reflect her qualifications and potential.

Since her interests and aptitudes were suitable for both public contact and clerical work, the counselor selected BUSINESS RELATIONS (vol. II, p. 236 of the DOT) as

the area of work for initial consideration. Several of the worker traits groups in this area required either more education than Mrs. M. had or previous business experience, but two groups, *Corresponding and Related Work* (p. 256) and *Information Gathering, Dispensing, Verifying, and Related Work* (p. 258) seemed to reflect her interests and capabilities.

Elimination of Office-Oriented Jobs

However, Mrs. M. was unaccustomed to an office environment, in which all of the jobs in the *Corresponding and Related Work* group were performed. Some of these jobs also required typing ability, which eliminated them from her consideration, so the counselor suggested investigation of job possibilities in the second group.

Consideration of Worker Traits

Worker requirements for jobs in this group include: "Verbal facility and the ability to relate to people in order to tactfully acquire information and create a good impression in answering inquiries; exactness and attention to detail in reviewing records and avoiding errors; numerical ability . . . ; a liking for public contact work."

The GED levels required for these jobs were 3 and 4, the latter correlating with Mrs. M.'s level.

She appeared to possess all of the worker requirements, either through background or test indications, and the physical demands of jobs in the group appeared to be light enough for a woman of her age and habits. In addition to these "plus" points, a number of the jobs were in nonoffice enviroments.

Choosing From Four Jobs

Among them were such jobs as TRAVEL CLERK (hotel and restaurant), OUTPATIENT-ADMITTING CLERK (medical service), LIBRARY ASSISTANT (library), and ADMISSIONS EVALUATOR (education).

The counselor could have returned to the list of areas of work, and would, most likely, have chosen CLERICAL WORK (p. 260) to consider. However, most jobs in this category are performed in an office environment and many require typing ability.

Since those in the *Information Gathering, Dispensing, Verifying, and Related Work* group seemed to match Mrs. M.'s interests and abilities, the counselor decided to concentrate on job possibilities in this group before exploring any other areas.

Selection of Job to Conform to Personal Characteristics

After reading volume I job descriptions of the four selected jobs and investigating opportunities available in the community, the counselor was able to help Mrs. M. decide that a job in the local library (LIBRARY ASSISTANT) would be most suitable for her. In addition to meeting all other criteria–GED level, interests, personal characteristics, and related factors–the library job would permit her to work with books.

Need to Explore Other Areas of Work

Fortunately, in this community library jobs were available. Had they not been, and if other jobs in the originally selected worker traits group had proved to be inappropriate or unavailable, the counselor would have turned to groups in the CLERICAL area of work for job possibilities which conformed to Mrs. M.'s GED level and other personal characteristics.

As it was, Mrs. M. was satisfied with her library job, and was able to bridge the gap between her previous stay-at-home life and her new working environment.

Activities and Interests Contribute to GED

In this case, the applicant's GED level accurately reflected her years of formal schooling, because her activities and interests subsequent to graduation had helped her to maintain her educational development. Even though she had no previous job experience, after the initial training period, she was able to perform a job whose GED requirement paralleled her own.

EXAMPLE III, A WORKER WHO MUST MAKE A VOCATIONAL CHANGE

Vito Z., aged 43, had worked for 25 years at a meatpacking plant. His most recent job, which he had held for 10 years, was as a Beef Boner. This job paid well; Mr. Z was satisfied and expected to remain in it until his retirement.

Unexpected Loss of Job

However, the packing company unexpectedly closed down the plant in Mr. Z.'s community and he, like the other 750 employees, found himself without a job.

The company offered jobs in plants in other areas to employees with 5 years' tenure; but Mr. Z.'s wife worked at a garment factory in the same community, his two married daughters lived there, and he was hesitant about "pulling up stakes" at his age and starting afresh in an unfamiliar community.

Planning Vocational Adjustments

Because of the large number of persons involved in the plant shutdown and the fact that there were no other packing plants in the vicinity, the employment office in this community of 50,000 sent its automation manpower service representatives to assist employees in planning the vocational adjustments they would have to make. As part of this adjustment service, Mr. Z. was referred to a counselor.

During the initial interview, the counselor learned that Mr. Z. had immigrated from Lithuania, as a war refugee, when he was 17. He had begun work at the packing plant as a laborer, during World War II.

Review of Curriculum

Mr. Z. had gone to school until he was 15, and the counselor attempted, by reviewing curriculum charts for grades 7 and 8 with him, to ascertain the level of academic achievement he had attained. In the mathematics category, he had learned the four basic arithmetic functions and could apply these to practical situations; however, he could not remember having studied algebra or geometry. He had made good grades in arithmetic, and he remembered that his mother said he "had a good head for figures."

Disparity in GED Factors

However, his language development was not at the same level. Since he had never studied English, the curriculum for this subject did not apply to him. He had learned enough English to communicate fairly well with his fellow workers, but he seldom read anything other than the daily paper and did virtually no writing. His language development, according to the curriculum chart, was at the lowest gradation of level 1.

Lack of Language Facility

Aptitude and Personality Factors

His manual and finger dexterities were extremely high, as was his eye-hand coordination. Because of his difficulty in reading English, it was impossible to expect accurate results from verbal tests.

Mr. Z. had been a dependable and capable worker in the meatpacking plant. He had gotten along well with both workers and foremen, had been able to follow directions, and had "caught on" quickly when methods of doing things were demonstrated to him.

He had not been aggressive in his attitude or work habits and had never exhibited ambition to do more than what was assigned to him.

Assignment of GED

On the basis of Mr. Z.'s apparent reasoning and mathematical development, his work experience, and his general attitude, the counselor assigned him a GED of 3.

Need for Basic Education

However, any job for which he could apply must have low language requirements, even though it might demand considerably higher development in other areas. If he could be convinced that he could benefit from basic education courses, which were offered by the community school system, he could improve his language development and be better equipped to perform more jobs.

Mr. Z. expressed an interest in any kind of plant job, or some other kind of work in which he could use the experience he had gained in the packing plant.

Since he was interested in work similar to what he had done before, the counselor

turned to the CRAFTS area (vol. 11, p. 298 of the DOT), which includes jobs much like the ones Mr. Z. had held.

Industries in Area

The counselor kept in mind the fact that there were factories in the area which manufactured work clothes; plumbing fixtures; and paper bags, wrapping paper and related products. There was also a cannery, which processed and canned vegetables raised nearby.

Similar Worker Traits

Two jobs in the plumbing fixture plant were in the same worker traits group as his former job as a Beef Boner (DOT title, BONER, MEAT (slaught. and meat pack.)). They were ENAMELER, the duties of which consisted of spraying the finish coat on plumbing fixtures and baking the sprayed fixtures, and PLUMBING HARDWARE ASSEMBLER. Manipulative jobs in the work clothes establishment were in the cutting and spreading departments; those in the paper goods factory were in the envelope-making department.

Experience Needed to Perform Manipulative Jobs

The difficulty in placing Mr. Z. in any of these jobs, even if they were open, was that they were not entry jobs. Just as it would have been impossible for him to begin his meatpacking career as a BONER, MEAT, so also it was impossible for him to go into another industry at this level.

Although the worker requirements were the same for the BONER, MEAT, and for the jobs in other industries, familiarity with plant operations and experience in less demanding jobs in that industry would be needed before a newcomer could perform these manipulative jobs.

Promotion Factors

Also, under union agreements, such jobs are usually filled by promotion of plant employees. Even a person who had acquired experience in a similar plant probably would be ineligible for them unless no suitable employees were available for promotion. Therefore, Mr. Z.'s best chance of employment in another industry would be to enter at a lower level of complexity.

Need to Start at Lower Level

Mr. Z. was willing to accept a job at a lower pay rate, and there was no barrier of pride to keep him from performing a job at a low skill level.

Financial Needs Not Critical

His financial situation at the time of the shutdown was not critical. His wife was employed, his children were of age, and over the years he had saved money which could tide him over until other employment was available. In addition, his severance pay, granted by the company on the basis of length of his employment, amounted to 6 months' wages.

For this reason, the counselor felt that he might discuss another alternative with Mr. Z.

Among jobs listed under the worker traits group *Manipulating* was that of MEAT CUTTER (wholesale or retail trade). This job is similar to Mr. Z.'s meatpacking job, both in worker requirements and in equipment used.

Need for Vocational Training

Although Mr. Z. would have to go through a period of training before he could be employed in such a job, there was no urgency about his finding immediate employment. He could afford to take the time for training.

MDTA Class in Meat Cutting

A meat cutters' class was offered in the community under the Manpower Development and Training Act (MDTA); but before Mr. Z. could benefit from it, he would have to enroll in basic education courses to strengthen his language skills.

Basic Education Curriculum

The basic education language curriculum included grammar, reading, speaking, and handwriting, as listed in the language sections of the chart for levels 1, 2, and 3.

The basic education course lasted for 30 weeks, but it was expected that Mr. Z. would be equipped to begin MDTA training after 12 weeks of classes. Since basic education classes were held at night and MDTA training in the daytime, he could continue to take classes and benefit from them after starting training.

After completing meat cutters' training, Mr. Z. would be eligible for employment in the meat department of a supermarket.

Similarity of Job Duties and Worker Requirements

Such a job would be in keeping with his long packing company experience. It would pay less than his former position, but more than the plant entry job he would otherwise consider.

Value of Basic Education in Equalizing GED Factors

The basic education course, although not mandatory for MDTA training, would be helpful as preparation for it. In addition, it would raise Mr. Z.'s language development to the level of his reasoning and mathematics. If he were to become employed as a retail meat cutter, he would be better able to communicate with customers and fellow workers, and possibly could take over some ordering and inventory tasks.

In this case, the developmental discrepancies in the applicant's educational background could be equalized by basic education courses.

Mr. Z. decided on this course of action as the most appropriate.

Disadvantages of Entering New Industry

Mr. Z. *could* have taken a plant job where these discrepancies did not matter—a job at a lower level which might, eventually, have led to a job similar to the one in which he had functioned for a number of years. However, he would have had to take an appreciable cut in wages and start out in an unfamiliar field, and he lacked the flexibility to adjust to this change.

EXAMPLE IV, AN INDIVIDUAL INTERESTED IN VOCATIONAL TRAINING

Helen P., aged 36, was interested in information about MDTA training programs.

Personal Background

She had finished the eighth grade 22 years previously, and had been married at the age of 17. Her only work experience had been in a laundry, where she had been employed sporadically over the years.

Mrs. P. expressed an interest in MDTA clerk-typist training, which a friend of hers had recently completed. However, she was willing to consider other possibilities.

Aptitude test results indicated good eye-hand coordination and manual dexterity; clerical, spatial, and numerical aptitudes were within the average range; verbal aptitude was slightly below average.

Review of Curriculum

Reviewing the curriculum listed on the chart for level 3 (grades 7 and 8) with Mrs. P., the counselor learned that she had been exposed to all the language and mathematics subjects listed. She had not disliked going to school and had dropped out, at the age of 14, mainly because her parents had a number of younger children and thought she was old enough to start bringing in some money instead of being an expense to them. Mrs. P. had made low grades in all subjects, and had been kept back in the sixth grade. Of all the subjects she had taken, she had liked arithmetic best, even though her grades in it had been no higher than in other subjects.

Factors in Appraisal of GED

Mrs. P.'s duties in the laundry had been elementary, involving such tasks as folding flat pieces, removing laundry from machines, and wrapping bundles of shirts. She was not required to read or use arithmetic in her work.

She read very little—usually only her monthly church magazine and some parts of the newspaper. She said she'd been "too busy bringing up four kids with a sick father" for any outside activities.

Mrs. P.'s manner was friendly, open, and unreserved. Although her grammar was faulty, she was able to express herself well, and she was interested and cooperative throughout the interview and test sessions.

Academic achievement tests indicated that, although Mrs. P. had completed the eighth grade, her actual retention of knowledge was that of a sixth-grade student.

Assignment of GED

On the basis of this level of academic achievement, Mrs. P.'s general demeanor, and the absence of such contributing factors as hobbies, job experience, or self-directed study, the counselor felt that she should be assigned a GED level of 2.

High School Education Requirement

The counselor explained to Mrs. P. that MDTA clerk-typist training required a high school or general equivalency diploma. He informed her about education courses, with curriculums planned to include language and mathematical courses as outlined under levels 2, 3, and 4 of the curriculum chart. If she was interested, he could give her the necessary papers to apply for enrollment in such a course, which she would need to prepare for the examination for a general equivalency diploma.

Financial Needs Urgent

Mrs. P. considered these suggestions, but was not enthusiastic about the long period of preparation for the general equivalency examination, which would then be followed by clerical training. Her husband was retired, and the family was living on his small disability pension. Since her youngest child was now in school, she was eager to start earning money to increase their limited income. Hence she preferred a training class that did not require high school, and through which she could get into a paying job more quickly.

The counselor found that, to be eligible for any type of MDTA clerical training, Mrs. P. would have to have a high school diploma or its equivalent.

He secured a list of all MDTA training courses and found a number which did not require high school graduation for entrance. Among them was a course in alteration tailoring. This activity is reflected in the job of ALTERATION TAILOR (785.281),

Consideration of Training Programs

listed in the WTA group *Craftsmanship and Related Work,* page 312, in the CRAFTS area of work in volume II of the DOT.

Choice of Training Programs

The GED ascribed to the jobs in this group is a range of 3 to 4, which would imply that Mrs. P. should have some additional education in order to raise her own GED to this level. However, remembering her habit of sewing for her children, the counselor asked if she might be interested in this type of training, which includes instruction in the alteration and fitting of men's and women's clothing. He noted that she possessed the finger and manual dexterity which would be as useful in this type of training as in the clerk-typist program.

Preparation for Training Program

Mrs. P. was receptive to the idea of entering this program and decided to apply for admission to it. Although she could have begun immediately, she decided, on the advice of the counselor, to register for a basic education "brush-up" course, which included language and mathematics curriculums as listed for level 3 of the curriculum chart. This course would last only 6 weeks, as opposed to the standard 30-week course suggested as preparation for the general equivalency examination.

Benefits of Basic Education

The course stressed reading skills, grammatical usage, and legible writing in the category of language curriculum, and a review of the four basic arithmetic functions, plus fractions, percentages, and measurements, in the category of mathematics curriculum. By first studying these subjects, Mrs. P. would be more able to benefit from the vocational instruction in the alteration tailoring course. She would also gain the benefits of better communication skills, along with improved mathematical and language abilities.

EXAMPLE V, AN INDIVIDUAL INTERESTED IN APPRENTICESHIP TRAINING

Personal Background

Henry R., aged 22, was interested in apprenticeship training. Henry had been an indifferent student who dropped out of school after the 10th grade and enlisted in the Army. He had spent 2 years with the Infantry in Vietnam and had returned home 4 months before coming to the Apprenticeship Information Center. During that period, he had worked part time as a construction laborer on an apartment building project. He was interested in getting into a union involved in construction work of some kind; he had liked his laboring job because of the high pay, and he was in excellent physical condition and did not mind hard work. Except for wanting "some kind of union construction job," he had no particular preferences.

Curriculum Evaluation

The counselor learned that Henry had liked his mathematics courses more than those in language. He had been exposed to all the courses listed in the curriculum for levels 1, 2, and 3 and had generally made C's and D's. In high school, he had taken algebra, which he had not liked or done well in, but not geometry.

He had taken freshman and sophomore English, but couldn't remember any parts of it he had enjoyed particularly. He had especially disliked assignments involving the composition of themes or reports.

Academic Achievement Level

According to achievement tests, Henry possessed the educational development of the average person who had completed 9½ years of school.

Currently, he had no hobbies, other than occasional fishing trips with friends, although, when he was younger, he had enjoyed working on model cars, planes, and boats. He was engaged to be married and spent most of his spare time with his financee, attending parties or sports events.

Other Considerations in Appraisal of GED

His only Army training was for his service assignment as a rifleman. On the basis of all of this information, the counselor assigned Henry a GED rating of 3. He had progressed academically to the point where he might be able to perform jobs requiring a GED at the lower gradation of the 4 level. However, since he had not explored other sources for the acquisition of the type of education considered in evaluating GED, the counselor felt that the lower rating would more nearly reflect his actual capabilities.

Assignment of GED

Indications of Aptitudes

On aptitude tests, Henry made high scores in finger and manual dexterity and eye-hand coordination. His spatial aptitude was also appreciably higher than average; other scores indicated average or slightly higher than average potentials.

The local Apprenticeship Information Center had information on union apprenticeship programs in a number of construction trades. They included programs for carpenters, cement masons, electrical workers, iron workers, painters, plasterers, and roofers. Looking in volume II of the DOT, the counselor found that titles representing all of these trades are found in the broad area of work of CRAFTS (vol. II, p. 298 of the DOT). Those of CARPENTER (const.), ELECTRICIAN (any ind.), and ROOFER (const.) are listed under the worker traits group of *Craftsmanship and Related Work* (p. 312); those of STRUCTURAL IRON WORKER (const.), PAINTER (const.), and PLASTERER (const.) are included in the group, *Precision Working* (p. 319); that of CEMENT MASON (const.) is included in *Manipulating* (p. 322).

Significant Worker Traits

Jobs in all of these worker traits groups require some degree of manual and finger dexterity, spatial perception, and form perception. Some jobs, notably those in the *Craftsmanship and Related Work* group, require more mathematical ability than do others.

Variation in GED Required

The GED level required for performance of these jobs varies from 2 to 4, with the largest number requiring a level of 3. Those estimated to be at the 3 level would be appropriate for entrance consideration for Henry for the jobs in all of those three worker traits groups.

Mandatory Education Requirement

Most of the apprenticeship programs in these trades require a high school diploma, with some shop math, for entrance. The counselor explained to Henry that he would not be considered for them unless he was willing to work toward his high school equivalency certificate. However, Henry could not be persuaded to do this. He had not liked school originally; he was thinking about getting married; and since he *could* enter some apprenticeships without a high school equivalency, he didn't see the need to "go through all that."

Choice of Apprenticeship Programs

Eliminating those programs which, in this locality, require a high school education gave Henry a choice of only two apprenticeships–those of the Roofers' and the Plasterers' Unions. Both occupations require a GED of 3, which correlates with the level assigned to Henry.

Henry chose to apply for entrance into Roofers' apprenticeship training, since local demand and a more promising employment outlook nationally seemed to offer him a better future in this trade.

Other Possibilities

If this applicant had felt different about continuing his education, he could have applied for entrance into any of the apprenticeship programs, by obtaining both the needed shop math knowledge and the stipulated high school equivalency certificate.

In this situation, the *attitude* of the individual toward continuing his education was the critical factor limiting his choice of jobs as well as his potential for increasing his GED level.

EXAMPLE VI, AN INDIVIDUAL PARTICIPATING IN THE WIN PROGRAM

Betty L., aged 27, is the mother of four children and an AFDC recipient. Her caseworker urged her to investigate the Work Incentive Program (WIN), which provides training and other services to help welfare recipients move into gainful employment.

Personal Background

Mrs. L. was married when she was 16, but she and her husband have been separated for a number of years. Even though all of her children were in school, she had not found work outside her home; her monthly welfare check was her only source of income. She had been an AFDC recipient for 6 years.

When Mrs. L. came to the WIN office, her appearance was slovenly; she was poorly dressed and unsure of herself and had difficulty in communicating.

Financial Problems

Mrs. L. told the counselor that she and her family had been living on a welfare grant of $146 per month. She was having difficulty making this amount cover even basic expenses. There was never enough money for "extras" of any sort, and she did not have the reasoning or mathematical ability for budgeting. Each month when her check came, she paid the rent on the family's three-room apartment, and then "just spent 'til it ran out."

She was apathetic about her situation most of the time; in fact the only reason she had decided to investigate the WIN Program was her concern for her children. She did not care about working and did not have any idea what kind of work she wanted to do; but she thought the money she had heard a person received during the training period would help buy the things the children needed.

No Work Experience

Mrs. L. had no work experience other than occasional babysitting, and she had no hobbies or interests outside her family.

She was interviewed and tested to determine what type of work-education plan would be most suitable for her.

Evaluation of Curriculum

Mrs. L. had dropped out of school after the eighth grade. Reviewing the curriculum for grades 7 and 8 with her, the counselor found that she had little recollection of having studied any of the subjects listed. She did not know the meaning of the word "punctuation." Although she could read a little, she stumbled over two-syllable words; the mathematics curriculum was completely unfamiliar to her.

Turning to the curriculum chart for lower grades, the counselor learned that Mrs. L. lacked familiarity with some of the curriculum content included for grades 1 to 3. She had never seen an encyclopedia, had no idea how to write a logical sentence, and had difficulty doing even simple two-digit addition problems.

Since Mrs. L. was not equipped to take written tests, she was evaluated through interview and nonverbal tests. On the basis of this evaluation, plus her general background, the counselor could assign her a GED of only 1.

Orientation and Assessment Sessions

Orientation and assessment sessions revealed that Mrs. L. would benefit from practical education in living habits, as well as basic education classes, to prepare for jobs requiring a GED of 1.

Her cultural background, poor living habits, and total lack of job experience or familiarity with a work environment, plus her low level of educational development, made it necessary to plan a program of concentrated education and orientation to prepare her for entrance into the world of work.

Basic Education Curriculum

All of Mrs. L.'s aptitude scores were low, although those indicating adaptability to factory work were slightly higher than the others. No vocational choice was indicated. It was thought best to plan her basic education curriculum to prepare her for training in some sort of repetitive work, since it would require less instruction than other areas of work.

Mathematics Curriculum

The curriculum chart for grades 1 to 3 and 3 to 6 was used to plan a mathematics curriculum for Mrs. L. It began with a reintroduction to counting and progressed

through simple problem solving, using the four mathematical functions. Fractions and conceptual mathematics were not introduced, since Mrs. L.'s span of attention was short, and these subjects probably would not be needed in any factory job she would perform.

Language Curriculum

Her basic language curriculum was to start, literally, at the alphabet learning level. Reading would be introduced and emphasis placed on the relationship of the written to the spoken word. A spelling curriculum would be included, primarily to familiarize Mrs. L. with common words she would encounter when reading. Because of her difficulty in communicating, she was encouraged to participate in group discussions and to learn to express herself.

The counselor also suggested that, since Mrs. L.'s schooling would give her a common interest with her children, she exchange information about school experiences with them. In this way she would not only practice conversation but also help the children develop the motivation to stay in school.

Vocational Plan

The WIN team's plans for Mrs. L. were simple. They called for the basic education and vocational training she was capable of mastering and would equip her to begin a productive life.

Looking ahead to the time when Mrs. L. would complete the 30-week basic education program, the counselor turned to the Alphabetic Arrangement of Areas of Work to locate worker traits groups of jobs which would reflect Mrs. L.'s potential. Because, even after basic education, she could not be expected to perform jobs requiring a GED of more than 1 or 2, the counselor turned to jobs in the ELEMENTAL WORK area (vol. II, p. 353 of the DOT) for consideration.

Choice of Worker Traits Group

Of the three worker traits groups in this area, *Signaling and Related Work, Feeding-Offbearing,* and *Handling,* the last group appeared to include the largest number of jobs for which Mrs. L. might be considered.

Worker requirements for jobs in this group include: "an inclination toward routine, repetitive activities"; "some dexterity with the fingers and hands"; and "the ability and willingness to follow instructions."

Since Mrs. L. appeared to possess all of these qualities, the counselor's next step was to read through the list of *Handling* jobs to see which of them might be available locally. A number of industrial establishments in the area were cooperating in programs to hire disadvantaged workers, and it was in one of these that the counselor hoped to find a place for Mrs. L.

In addition to possessing a GED of 1, a job which she could perform also must have only light physical demands because her physical capability was limited. With this in mind, the counselor looked for jobs in the group which would be light enough for her to perform.

Since there are more than 1,200 jobs listed in this worker traits group, the counselor concentrated on those which existed in industries in the area and appeared to meet Mrs. L.'s physical strength qualifications.

Choice of Jobs

Among the jobs that met these specifications were ones such as CANDY MOLDER, HAND; CANDY SPREADER; and KISS SETTER, HAND in a local establishment that manufactures and packages candy. In an electrical equipment manufacturing company were such jobs as COIL FINISHER, COIL FORMER AND PRESSER, INSULATOR, and LACER AND TIER. In addition to these positions, there were jobs in garment, canning and preserving, and cleaning and dyeing establishments which Mrs. L. could learn after she completed her basic education and vocational training.

The most important step had been taken. The *kind* of work Mrs. L. could perform after training had been *identified* on the basis of her GED level, interests, aptitudes, and physical capacity.

The final step was for Mrs. L. to complete her basic education and vocational courses. What her job would be, or where she would perform it, would depend on openings available in the various establishments at the time when she was "job-ready."

EXAMPLE VII, A DISADVANTAGED YOUTH

George M., aged 16, had to become self-supporting. He lived with his aunt and 12 cousins in a four-room slum apartment. His mother had died 3 years before; he never knew his father.

Personal Background

When he was 6 months old, his 7-year-old sister had dropped him while carrying him down the stairs. He had suffered an alarming head wound, but had not been otherwise injured. He had not been a "bright" child, and his family always assumed that this was because he had "fallen on his head" when he was a baby.

George had grown up with little education. There was little enforcement of school attendance laws in the district, and George went to school or stayed home, according to his own desire. When he did go, he was compliant and docile, but his comprehension of subject matter was negligible. George was a problem student in that he was an extremely slow learner who, according to school tests, had an intelligence quotient of only 79. However, his teachers were kept busy controlling many of his fellow students who were belligerent and aggressive. Since George caused no trouble, it was easy for his teachers to ignore him. He was kept back several times, and was in the eighth grade at the age of 16.

Personality Traits

When his mother died, George was a slight, scrawny 13-year-old who shined shoes in the downtown area close to his ghetto neighborhood for whatever sum people wished to give him. He had been asked to leave various corners by police, but had become adept at anticipating their approach and hurrying away to some other area. He maintained a polite and humble attitude toward customers, police, and his peers, since he was too small to defend himself, and he had learned that a pleasant manner and an ingratiating smile were his best defense.

His mother had worked part time in a laundry to support herself and George. Her earnings, supplemented by George's meager income from shining shoes, were adequate to keep them alive. His mother had been married only once, to the father of her oldest child. Her husband had deserted the family, and she had the sole responsibility of raising her four children.

Financial Problems

Because of the illness that ultimately resulted in her death, George's mother had been unable to work full time. Her earnings were low. She had no life insurance, and under social security regulations, George was entitled only to the minimum benefit of $48 per month until he became 18 years old, when all benefits would stop.

Living Conditions

George's older sisters and brother were all away from home and out of touch. After his mother's death, he stayed by himself for a few weeks, until the rent on the flat was due. He was then taken in by his aunt, who had 12 children and a husband who occasionally came home. They lived in a four-room tenement flat, and their income stemmed almost exclusively from their welfare payment, although the husband's occasional visits usually brought a bonanza of a few extra dollars.

The aunt didn't mind having George with her; his $48 monthly stipend went into the family budget, helping to feed several of the other children. However, George was unhappy. He and his mother had had a pleasant relationship. He felt like an outsider with all of his cousins. Moreover, his social security benefits would cease in 2 years, his aunt was expecting another baby, and the flat was going to be even more crowded.

As it was, several children were sleeping on mattresses in every room, and there was no privacy or peace. George realized that the best thing he could do would be to leave his aunt's household and support himself.

He was 16 years old, without even a complete eighth-grade education. He had had only casual work experience. He was too slight for physical labor, weighing 118 pounds and standing only 5 feet 4 inches.

His only visible asset was his smile, which was ingratiating and sincere and had increased the profits from his shoeshining endeavors.

Decision to Leave School

George decided to ask his school principal for suggestions. After reviewing school records, the principal realized that, because of George's low IQ, coupled with his slight physical structure, planning his job future was a real challenge.

Since George was not progressing in his school work and it would be unrealistic to expect him to profit more than superficially from continuing his present schooling, the principal saw little reason to encourage him to stay in school.

It would also be wrong to suggest a simple job involving heavy physical work. The principal decided that a friend of his, who was a youth counselor at the local office of the State employment service, might help George and gave the boy an introductory note.

Interview Impressions

During the first interview, the counselor was impressed by George's pleasant manner. Although his speech was simple, and reflected his rudimentary usage of English, he was polite, well mannered, and attentive. His appearance was better than average; he was dressed in jeans and an open-necked dress shirt. His long dark hair was neatly combed back from a face that shone with cleanliness. His shoes were polished and his fingernails were clean.

Program Possibilities

They discussed some of the Government-sponsored youth programs for which George might qualify. The Neighborhood Youth Corps (NYC) would provide work experience and a small amount of remuneration, both of which would be helpful. It also offers job training and other services. However, to qualify for NYC's full-time out-of-school program, George would have to be a school dropout for 3 months, and he wanted immediate employment. The Job Corps program might provide a solution, but George was not interested because he did not wish to leave the surroundings in which he had grown up. He had lived all of his life in a "tough" neighborhood, and would probably be incapable of adapting to new surroundings, especially in the company of other, more sophisticated youth.

Curriculum Review

The counselor reviewed George's curriculum coverage with him and found that, although he had been exposed to the basics of reading, spelling, and arithmetic, he could not state specific areas which were familiar to him, even though he was agreeable and cooperative throughout the discussion. Testing corroborated the findings of the counselor and the report from George's principal. George's academic ratings, in terms of achievement, were at only a second-grade level.

Assignment of GED

Considering the factors of school achievement, casual work experience, and general manner, the counselor assigned George a GED of 1, with the possibility of considering some jobs with a slightly higher GED requirement, depending on worker traits needed.

George wanted to find a job immediately. He had no interest in training programs or long-range educational goals. The wish to leave his unpleasant environment was paramount in his mind, and he would consider any type of work.

If George had exhibited either greater innate intelligence or the potential for acquisition of more complex skill knowledges, the counselor might have recommended that he take the time to investigate training programs, vocational classes, or other career preparatory courses.

However, he agreed that an immediate job, with compensation adequate to provide for George's needs when coupled with his small social security grant, was the answer to George's current problems. Possibilities for career plans could be investigated later.

Selection of Work Area

Remembering that George's GED level of 1 would limit the number and types of jobs which he could perform, the counselor turned to the Worker Traits Arrangement in volume II of the DOT to consider areas of work which might be suitable.

Since George possessed an engaging personal manner, a neat appearance, and the willingness to perform any sort of job, the counselor first considered the area of PERSONAL SERVICE (p. 498). Under the worker traits group, *Miscellaneous*

Worker Traits Requirements

Personal Service Work, the counselor found jobs which required George's personal vocational assets–such jobs as WAITER, BUS BOY, and BOOTBLACK, all of which required the ability and willingness to take, understand, and follow orders; a courteous and cheerful manner in dealing with the public; facility in adjusting to a routine; manual dexterity; and cleanliness and freedom from communicable disease. Remuneration for most jobs in this field included the collection of tips from customers. Since these depend primarily on the worker/customer relationship, the counselor could anticipate that, because of George's pleasant manner and willingness to serve, he could earn more from tips than most workers could.

Personal Service Jobs

The GED requirement for jobs in this field was 2 or 3, higher than the 1 which the counselor has assigned to George. However, the counselor believed that, because of George's enthusiasm and attitude, he could handle jobs of this type if they did not require the ability to comprehend complicated written or oral instructions. The counselor also suggested that George investigate basic education programs provided by the city school system in order to upgrade his reading and arithmetic skills. Since George had actually been lost in the shuffle in the school which he attended, it was possible that his learning capacity could be improved by individual attention and concentrated effort on the part of an interested instructor.

Elemental Work

George expressed interest in the type of work the counselor suggested in the *Miscellaneous Personal Service Work* group. However, the counselor also reviewed the worker traits area of ELEMENTAL WORK, which includes the three worker traits groups of *Feeding-Offbearing, Signaling and Related Work,* and *Handling.* All of these groups are comprised of jobs possessing a GED requirement of 1 or 2; however, many of the jobs require heavy physical labor, and George's slight stature would not permit this. He met the worker requirements for ability to adapt to routine activities and to follow instructions. According to the hiring requirements for most jobs, personal qualities of dependability and honesty are more important than scholastic achievement, and George possessed both of these.

Job Possibilities

His low intelligence (an IQ of 79 placed him at the lower end of the dull-normal category, and this rating was corroborated by scholastic achievement and other tests) would be no handicap for many jobs in these groups; in fact, there were many instances of mental retardates, whose intelligence was lower than George's, functioning adequately in them. However, the fact that he was only 16 could be a problem and might necessitate job placement under one of the programs in which age requirements are waived in order to provide employment for disadvantaged youth.

The counselor found that George could be hired as a Bottle Sorter (MATERIAL HANDLER (any ind.) 929.887) in a soft-drink bottling plant which was cooperating in a program to hire disadvantaged workers. His duties would be simple, entailing placing empty bottles in one location, filled bottles in another. The work would be done on an assembly line, and no heavy lifting would be involved. The pay was minimal to begin with, but union membership within 3 months would assure George of guaranteed periodic increases and eventual economic independence.

This job, and others similar to it, would provide the security which George would need to strike out on his own, but the job would be dead end. There was little hope that the only directly related promotional opportunity–to the job of department foreman–would be available to George, since his potential for supervisory work was limited, not only by his low intelligence but also by his lack of leadership qualities.

Another job possibility was open to George. A barber in the downtown area was interested in installing a shoeshine concession in his shop and would consider George for this position. Although the wages he could pay were low, a small furnished apartment in the same building would be available to George; and since the shop catered to an affluent clientele, generous tips would probably increase the small base pay to a more reasonable amount.

George's pleasant personality would be an asset in this type of work. In addition, the job would be performed in an environment more familiar to him than that of the soft drink bottling establishment.

Looking toward the future, George could attend evening basic education courses, which were free, to improve his general educational development. Some time later, he might be subsidized in attending vocational classes for barbers, with the ultimate aim of working in a barber shop or eventually opening his own shop; or he could take some other related training, such as an MDTA course in cleaning and pressing, with the possibility of combining his shoeshine concession with a downtown quick-press service for businessmen.

Either the plant job or the shoeshine/barber shop plan would accomplish George's immediate aims—to move out of his aunt's flat and start life on his own. Both alternatives would be practical, since his GED level and capabilities were immediately appropriate and no preliminary training would be necessary for him to make his clean break. However, the shoeshine job, with its related career plan, would seem to be more compatible with George's personality traits and offer a more promising future.

EXAMPLE VIII, AN UNEDUCATED MAN

John M., aged 27, arrived in a large Midwestern city from his life-long home in the rural South. He had grown up as the fifth oldest in a family of 10 children and had never been to school. As the child of a family of sharecroppers, he had started picking cotton as soon as he was able to toddle after his older brothers and sisters. Every family member had to work to scrape a living off the land.

Family Background

When John M. was 15, his father died, making the task of surviving even harder. Through the years, most of the older children left—usually to work as hired hands on someone else's farm, or to find better paying jobs at the turpentine distillery.

Finally, only John M., his mother, and his two youngest brothers remained. It was almost impossible for the four of them to work the land, which had become improverished through lack of proper cultivation over a long period. By mutual decision of Mr. M.'s family and the landowner, the family decided to leave the farm.

Mr. M.'s mother moved in with one of her daughters to help care for her grandchildren. The younger brothers left to work on neighboring farms.

Mr. M.'s decision to leave the area and go north to the city was based on reports brought back from relatives, who had made the move a few years earlier and had found well-paying jobs in industry.

Decision to Move to the City

Mr. M. had stayed on the farm out of a sense of family loyalty and responsibility. He had not been drafted, because of both his illiteracy and the need for him to stay and help support his family. He had never been more than 20 miles from the farm during his 27 years, but had always had a yearning to find out more about the world and to see it for himself.

At his request, the landowner wrote to his relatives in the city to notify them that he was coming; he gathered his few belongings and small amount of cash and boarded the bus.

Discovery of Limitations

A day or two after his arrival in the city, a cousin took him to the plant where he worked to apply for a porter's job. Mr. M. was crestfallen to find that one consideration for employment was that an applicant be able to complete his own job application form. Although the job for which he was applying was a simple manual one, involving no need to read or write, the establishment had set this standard as a means of screening out "incompetents." The personnel manager reasoned that if, in this day and age, an individual could not read and write well enough to perform this task, he would not be "bright" enough to perform the simplest beginning job.

Since Mr. M. was unfamiliar with the city, his relatives had to escort him to plants advertising for beginning workers. He would have done anything, so eager was he to support himself and start his new life; however, he found that his illiteracy, lack of experience, and unfamiliarity with the city were all obstacles to being hired.

He had become extremely discouraged and was considering returning to his old home and seeking work at the distillery when a neighbor suggested that he visit the Concentrated Employment Program (CEP) Center operated by the State employment service.

Visit to CEP Center

Mr. M. had become familiar enough with the neighborhood to find the office, which was located only a few blocks from his cousins' flat, and he went there the next morning.

A deputy interviewed Mr. M., filled out his application form, and introduced him to a counselor, who, with other members of the CEP placement team, would assist him in finding meaningful employment. After his need for this particular type of service had been verified, Mr. M. began a 2-week period of assessment and orientation.

Assessment and Orientation

During this period he would be tested and interviewed in depth to try to determine his interests and potentials. He would begin receiving a stipend of $1.75 per hour immediately.

Because of Mr. M.'s illiteracy, it was impossible to evaluate his intelligence or acquisition of knowledge by means of any verbal tests; "culture free" tests also presupposed expsoure to some of the appurtenances of life, whether in an urban or rural environment. Mr. M.'s experiences had been so limited that even these tests could not be relied on to measure his intelligence correctly. He had seen few books and had read none; he had traveled no farther from home than the landowner's old pick-up truck would carry him; he had seen only two movies in his life; and he had been introduced to television only after coming to the city.

Test Results

Mr. M. was given work sample and "hands on" tests to determine his potential for performing various work activities, as well as to evaluate his alertness and ability to understand and follow oral instructions and to measure other qualities related to the intelligence factor. Considering his background, he did surprisingly well. Testing indicated that he possessed exceptional manual and finger dexterity, mental alertness, and the capability to learn.

Leisure Activities

Interviews elicted the information that Mr. M. had often repaired broken-down farm equipment, sometimes fabricating parts from the pile of junk in the old barn. He was also adept at making repairs around the house, although the family could not afford replacement parts and his repair work was largely makeshift. He was a successful hunter and fisherman when farm work allowed time for recreation, and he skinned and cleaned all the fish and game he and the other men in the family caught.

Mr. M. did not make a good first impression. He was a large, rangy man who wore patched work clothes to all of the orientation and assessment sessions. He had a jagged scar, the result of an accidental blow with a pitchfork, on his face. He had had no medical attention for the wound, and it had healed open, with four or five large discolored welts marring the lower portion of his face. His speech was almost unintelligible.

A portion of the time spent in helping Mr. M. to become work-ready would have to be devoted to improving his appearance and speech.

Physical examinations indicated that he needed dental work and was suffering from a vitamin deficiency. Aside from these handicaps, which would be treated at designated clinics, his health was good.

Assignment of GED

The CEP team, evaluating test results and interviews, agreed with the counselor's assignment of a GED level of 2 for Mr. M., since his enthusiasm, performance on tests, and evident ingenuity on the farm provided a legitimate substitute for the reasoning ability he would have acquired in the primary grades of school.

However, the team recognized the fact that formal education would have to be part of any career plan for him. They were hopeful that test results would be verified by success in the basic education program.

During the remainder of the orientation and assessment program, Mr. M. learned some of the practical rules for urban living–how to find his way around the city; the need to get to work at the appointed time and to stay on the job; the importance of cleanliness and good grooming, even in a manual job.

Placement in Job

At the end of the orientation and assessment program, Mr. M.'s team, taking into consideration his GED of 2, his rural (outdoor) background, and his physical condition, were able to place him in a job situation which combined one-half day of work with one-half day of adult basic education, thereby providing the employment which he needed at once, and the general education which he would need in order to advance. The employment representative contacted a shipping company which was participating in the Job Opportunities in the Business Sector (JOBS) Program for hiring and training disadvantaged persons, and Mr. M. was hired as a stevedore (LONGSHOREMAN (water trans.) II, 922.887).

The outreach worker on the CEP team made certain that Mr. M. was on the job the first few days and helped him select new durable shoes with part of his first full week's paycheck.

At the same time Mr. M. began work on the shipping docks, he also started basic education classes. He was placed in a class with 18 other illiterate adults, with the curriculum planned to include all subject matter listed in level 1 of the curriculum chart, with additional emphasis on learning proper speech patterns.

Mr. M. progressed much more quickly than any of the others in his class. The CEP team, which maintained contact with him, decided that it would be beneficial for him to have special tutoring. A tutor was assigned, and Mr. M. was exposed to the subject matter listed under levels 2 and 3 of the curriculum chart.

After 7 months, an evaluation of general aptitude tests given to Mr. M. suggested that he was capable of passing the State's high school equivalency test. He studied sample test materials preparatory to taking the test and was successful in passing it.

The JOBS contract, under which Mr. M. was employed by the shipping company, was binding to the company for a period of 18 months, and he was doing satisfactory work. However, both he and the CEP team felt that he was now qualified to perform work requiring more skill.

Reassignment of GED

On the basis of his high school equivalency diploma and his work experience, the counselor reassigned Mr. M. a GED level of 3. Most high school graduates are assigned GED levels of 4. However, even though Mr. M. had learned enough academically to pass the equivalency test, he had acquired this knowledge at an accelerated pace. The counselor did not believe that he had gained enough familiarity with urban life, or that his self-confidence had increased enough, to justify a higher assignment. Hence it would be more realistic to limit his current work choices to jobs which required the lower GED level.

Judging from Mr. M.'s interests, aptitudes, and indications of manual and finger dexterity, the counselor felt that his most promising future could be found in one of the trades.

Choice of Work Area

Turning to the list of areas of work on page 214 of the DOT, the counselor selected the work area of CRAFTS as a possibility. Under this general work area, he noted that the worker traits groups of *Manipulating, Craftsmanship and Related Work,* and *Precision Working* all included jobs requiring a GED level of 3. Mr. M. possessed many of the worker requirements stressed for these three groupings–manual and finger dexterity, eye-hand coordination, and the facility to adapt to a routine.

Another general area of work which the counselor and Mr. M. considered was that of ELEMENTAL WORK. However, most jobs in the worker traits groups in this area required a GED of only 2. Since Mr. M. had progressed so admirably during the past year, both he and the counselor felt that he was capable of performing more demanding tasks.

Jobs in the work area of FARMING, FISHING, AND FORESTRY would have been appropriate to both Mr. M.'s background and his GED level, but none were available in the urban area, and he had no desire to return to the country.

Consideration of Job Possibilities

Although Mr. M.'s GED of 3 would have been appropriate for many jobs in the worker traits groups of *Accommodating Work, Animal Care, Customer Service Work, n.e.c.,* and others under the general area of PERSONAL SERVICE, he was not interested in working with people, still did not express himself well, and because of the scar on his face, did not make a good appearance.

After consideration, the counselor returned to the original work area of CRAFTS. The three worker traits groups of *Craftsmanship and Related Work, Precision Working,* and *Manipulating* all included welding jobs, construction jobs, and mechanical repair jobs, among many others.

Vocational Education

Mr. M. expressed an interest in all of these fields. The counselor consulted the employment representative to determine what job opportunities existed in the area for persons fully qualified to perform each of the three types of work, and to determine what training facilities were available.

After consideration of all factors, Mr. M. was enrolled, under an individual certification grant, in an accredited automotive repair trade school, where he is doing well.

After graduation, school personnel or his CEP team will help Mr. M. find employment. He could start as an AUTOMOBILE-MECHANIC HELPER (auto. ser.) 620.884 or USED-CAR RENOVATOR (ret. tr.) 620.884, both of which require a worker with a GED of 3.

With a dependable general and vocational background, plus the native intelligence which he exhibited in the early tests, Mr. M. can look forward to a brighter future than he ever dreamed could be his.

Appendix

Verification of Curriculums

The curriculum data in this publication were verified in various school systems and educational institutions by the following present and former Occupational Analysis Field Centers and Occupational Analysis Special Projects:

California OA Field Center
Los Angeles, Calif.
Kenneth J. Bohn, supervisor

Florida OA Field Center
Tallahassee, Fla.
Neal E. Kolb, supervisor

Michigan OA Field Center
Detroit, Mich.
Robert E. Halbeisen, supervisor

Missouri OA Field Center
St. Louis, Mo.
Bernard J. Teiber, supervisor

New Jersey Occupation Research Field Center
Newark, N.J.
John J. Kelly, supervisor

New York OA Field Center
New York, N.Y.
Maxwell Rosenzweig, supervisor

Washington Occupational Research Field Center
Seattle, Wash.
Homer McCollom, supervisor

Wisconsin OA Field Center
Madison, Wis.
William F. Miller, supervisor

Arizona OA Special Project
Phoenix, Ariz.
Fred L. Tancy , senior analyst

Texas OA Special Project
Austin, Tex.
Donald E. Hill, senior analyst

Connecticut OA Special Project
Hartford, Conn.
Walter Theis, senior analyst

Also verifying data were the following personnel of the various State agencies affiliated with the U.S. Training and Employment Service: Clement J. Bertwitz, principal employment counsultant, New York State Employment Service; Florence Bustamonte, supervisor of employment counseling, New Jersey State Employment Service, Trenton, N.J.; Elynore Walsh, senior counselor, YOC-HRD Center, New Jersey State Employment Service, Paterson, N.J.; Madge Ryan, supervising counselor, Missouri State Employment Service, St. Louis, Mo.; Frank Dunn, coordinator, MDTA program, Missouri State Employment Service, St. Louis, Mo.; Walter Dahl, supervisor, Apprenticeship Training Center, Missouri State Employment Service, St. Louis, Mo.; Bessie Johnson, counselor, WIN Program, Illinois State Employment Service, East St. Louis, Ill.

Educational systems and facilities cooperating in providing, reviewing, and verifying curriculum data were:

Arizona

Arizona State University:
Dr. Jerome W. Archer, dean of the English Department
James Cohen, assistant professor of mathematics
Dr. Ewar D. Nering, dean of Mathematics Department
Herschel Hosper, director of secondary education

Connecticut

Hartford City School System:
Henry C. Luccock, assistant director for curriculum, Hartford Board of Education

California

The Archdiocese School System of Los Angeles:
Brother Eugene and Sister Maria, administrators
Los Angeles City Board of Education:
Marvin Elliott, elementary mathematics supervisor
Bernice Christensen, elementary English supervisor
Sidney Sharron, secondary mathematics supervisor
William Rosch, secondary English supervisor

Florida

St. Petersburg Junior College:
Dr. Phillip Frederickson, dean of instruction
University of Tampa:
Dr. Harold M. Grutzmacher, vice president for academic affairs
Hillsboro County School System:
James W. Jordan, director of secondary education
Lawrence H. Worden, director of elementary education
University of South Florida:
Dr. Robert Shannon, dean, College of Education

Illinois

Collinsville Public School System:
Lester Rickel and Alfred Pirtle, curriculum coordinators

Missouri

St. Louis Public School System:
Earl Herminghans, director of curriculum
Mary York and Phillip Enzinger, curriculum supervisors

New Jersey

Bergen County Technical and Vocational High School:
James Wilson, director of evening school and apprenticeship coordinator
Lillian Watson, remedial reading specialist
Newark Board of Education:
Dr. Alma Flagg, assistant superintendent in charge of curriculum services
Englewood Board of Education:
John Perry, president

New York

University of the State of New York, Bureau of English Education:
Jerome Flax, representative

Washington

University of Washington:

William L. Phillips, chairman, curriculum committee, College of Arts and Sciences

Seattle Public School System:

Wesley Johnson, director of mathematics curriculum

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WHERE TO GET MORE INFORMATION

For more information on manpower programs and services in your area, contact your local employment service office or the nearest office of the Regional Manpower Administrator at the address listed below:

Location	States Served	
John F. Kennedy Fed. Bldg. Boston, Mass. 02203	Connecticut Maine Massachusetts	New Hampshire Rhode Island Vermont
341 Ninth Avenue New York, N.Y. 10001	New Jersey New York	Puerto Rico Virgin Islands
P.O. Box 8796 Philadelphia, Pa. 19101	Delaware Maryland Pennsylvania	Virginia West Virginia
D.C. Manpower Administrator 14th and E Streets, NW. Washington, D.C. 20004	District of Columbia	
1371 Peachtree Street, NE. Atlanta, Ga. 30309	Alabama Florida Georgia Kentucky	Mississippi North Carolina South Carolina Tennessee
219 South Dearborn Street Chicago, Ill. 60604	Illinois Indiana Michigan	Minnesota Ohio Wisconsin
411 North Akard Street Dallas, Tex. 75201	Arkansas Louisiana New Mexico	Oklahoma Texas
911 Walnut Street Kansas City, Mo. 64106	Iowa Kansas	Missouri Nebraska
Federal Office Bldg. 1961 Stout Street Denver, Colo. 80202	Colorado Montana North Dakota	South Dakota Utah Wyoming
450 Golden Gate Avenue San Francisco, Calif. 94102	Arizona California Hawaii Nevada	American Samoa Guam Trust Territories
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